

PROJECT OUTCOME REPORT

Functional and System Use Case for Records Management Application Environment

August 15, 2002



Department of Defense Information Technology Testbed



DEFENSE
INFORMATION
TECHNOLOGY
TESTBED

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c3risk inc

Executive Summary

In late 1999 the Department of Defense Information Technology Testbed (DITT) hosted at the Center for Army Lessons Learned (CALL), Fort Leavenworth Kansas initiated a development effort to extend and document Functional Requirements for Records Management Applications (RMA). These extensions targeted areas such as redaction in support of the Freedom of Information Act (FOIA), Privacy Act (PA), and security declassification.

During 2000 and 2001 the DITT developed activity models and extracted functional requirements from the models. These functional requirements were then migrated into Object Oriented notation and complete Use Case with functional requirements became documented. The final product produced a document that was widely received in both industry and within the government and would be used as the core document to contract vendors in order to develop the proposed system.

Additional requirements were also developed to leverage functionality of an RMA in support of business functions considered common and expected to be found in most agencies within the federal government.

A major objective of the project was to compare and contrast the development styles and techniques for like functional requirements between contracted vendors. Unfortunately, one of the two vendors contracted withdrew late in 2001. With only one vendor the focus of the project turned to evaluating the use of functional requirements to develop test and evaluation plans, test and evaluate the system and to determine if the government would accept the developed system according to the agreement.

The single developer – eManage, completed their system design within the agreed upon final parameters and delivered a working system to the CALL for use in the summer of 2002.

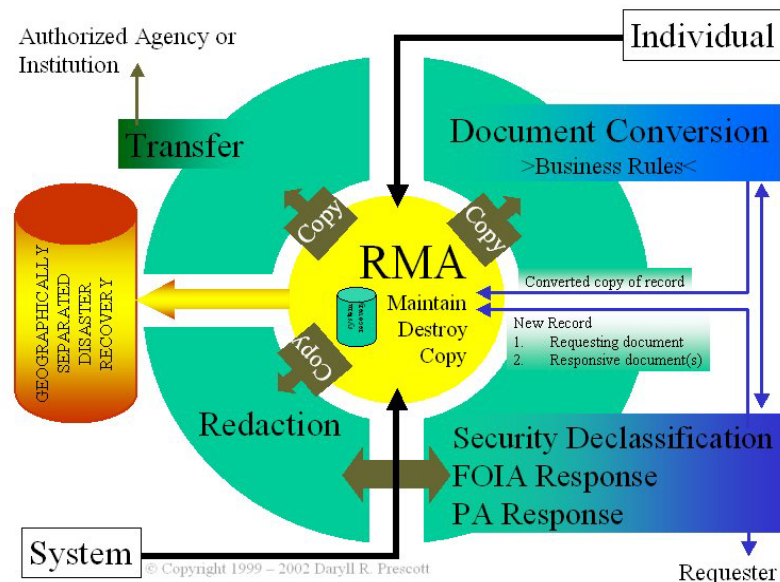


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The Department of Defense Information Technology Testbed (DITT)

In May 1997 the Assistant Secretary of Defense (ASD) (Command, Control, Communications and Intelligence (C3I) (ASD(C3I)) authorized the creation of the [Department of Defense Information Technology Testbed \(DITT\)](#) ([See Appendix B](#)).

The role of the [DITT](#) as set out in the ASD(C3I) letter was to:

- Perform functional testing and integration of new technologies related to records management.
- Collect, manage and disseminate information related to records management technologies.
- Test and support the implementation of records management systems on a broad scale.

From 1997 until 2002 the [DITT](#) produced a number of products ([See Appendix C](#)) and worked on many different technology design and implementations under the leadership and oversight of the [National Imagery and Mapping Agency](#) who directed the National Technology Alliance (NTA), National Media Laboratory (NML) ([See Appendix D](#)) day to day coordination responsibilities.¹

Personnel from the [Center for Army Lessons Learned \(CALL\)](#) participated over several years on many different projects ([Appendix E](#)). The breadth of knowledge and the diverse backgrounds and professional experience of the government's multi-disciplined team along with their contracted support team resulted in many successes.

The [DITT](#) performed as “functional expert” for many organizations around the world from 1997 to 2002 ([See Appendix F](#)). It was to continue publication of these reports and the willingness to share information and experience that kept organizations returning for their expertise and help.

Project Background

In September 2001 the [DITT](#) contracted with two [Certified Records Management Application \(RMA\)](#) vendors from the list of those certified by the [Joint Interoperability and Test Command \(JITC\)](#) to initiate development and deliver a usable and supported system using their DoD [Certified RMA](#) and the contracted functional requirements documented in [DITT](#) May 7, 2000 Report [Functional and System Use Cases for Records Management Application Environment](#).

Of the two vendors each submitted a different set of functional requirements to be developed they were

¹ The NML is a government-funded laboratory 1989 – 2002.

Vendor Name	Number of Use Case	Functional Requirements
eManage	16	59
Acton Burnell	15.5	58

Figure A – Vendor Use Case and Functional Requirements Comparison

A major outcome desired by the [DITT](#) through the process was to have at least two vendors accept contracts to develop additional functionality around their [certified RMA](#). The [DITT](#) believed the development efforts would result in a gain in knowledge for the government by comparing and contrasting the development styles and “how” the design accomplished the outcome stipulated by the functional requirement. Unfortunately since [Acton Burnell](#) withdrew, the [DITT](#) was not able to perform this activity. Instead, the project would scope in and focus on the use of the functional requirements imbedded in each Use Case and its impact on the development effort for the eManage product.

Lessons Learned

The Department of Defense (DoD) was given a non-Federal Acquisition Regulations (FAR) acquisition authority commonly called “845 Authority.” It is contained in Section 845 of the Fiscal Year 1997 Department of Defense Authorization Bill. 845 Authority allows the DoD to contract directly with commercial companies without “bidding out” a contract as is the case under “the FAR”. Equally important, 845s are exempt from the procurement protest system, Department of Defense Grant and Agreement Regulations (DoDGARS), Competition in Contracting Act (CICA) of 1984 and the Cost Accounting Standards. As a result, this authority was critical to the [DITT](#) because it allowed the government to use functional requirements instead of a systems design or engineering specification (i.e., “how versus what”) as the basis for evaluating and accepting a developed system. Finally, 845 authority has the effect of supplementing the commercial company’s internal product development funding that in essence, directs the development of additional functionality in a future commercial product.

Since only one vendor completed the contract all the final benefits of lessons learned were not gained in this project. However, some important and critical lessons were gained at the beginning of the process when there were two vendors under contract. These same lessons learned would ultimately keep the project on task and provide confidence to the government it would get the system it had contracted for.

Post Contract Award Systems Design Specification and Engineering Design

Immediately upon contract award both vendors took several weeks to develop and submit for government acceptance a systems design and engineering specification based upon the May 7, 2000 report [Functional and System Use Cases for Records Management Application Environment](#) – the core of the Broad Area Announcement the government used to evaluate project submissions and base contract award.

The government did not request each vendor to create a new systems design or engineering document. In point, the government specifically set out in the negotiations and awards the design and the test for acceptance would be based upon the functional requirements in the May 7, 2000 report.

The government informed each vendor;

1. Although the government had been sent the document it would not review it.
2. The government would not accept the document since acceptance would give it validity in the system design process
3. The government considers the May 7, 2000 report complete and is the document agreed upon for the basis of system design.
4. Can use their systems design specifications and engineering design, but the government would only use the functional requirements located in the May 7, 2000 report to evaluate the test and evaluation plan required as a deliverable by the vendor.

Test and Evaluation Plan

Vendors initiated development of their test and evaluation plan based upon their systems design specifications and engineering design.

Again, the government was faced with meeting with each vendor and re-asserting the need to follow their agreement and utilize the May 7, 2000 report to develop their test and evaluation plan.

The government informed each vendor that only a test and evaluation plan;

1. Based upon functional requirements located in the May 7, 2000 report would be accepted for review.
2. That specifically addressed the functional requirements agreed upon in the contract would be evaluated for acceptance.

Final Test, Evaluation and Acceptance

The BAA clearly stated there would be a mid-point and final review to be conducted at the [eManage](#) Washington, DC office. All other development was to be done by [eManage](#) developers in Ottawa, Canada and reviewed remotely by the DITT team. Near the end of development, the DITT team concluded that this process was untenable, often leading to re-inventing the wheel even with the best intentions on the part of the government and the contractor and even with good documentation of the issue. Ultimately, even some discrepancies could not be fixed in a reasonable time and government representatives left Ottawa with open action items resulting in follow on work to document them as being closed.

Contract Focus

The government maintained vigilance throughout the systems design and stayed focused on the contract agreement – the system would be based upon the May 7, 2000 report. A consistent and iterative theme was the continued return to design specifications and outcomes based upon “concepts” and “understanding” outside those specified and accepted under contract.

General Theme – “How” versus “What”

During the prototype development there was a consistent and continual discussion of “what” versus “how”. These discussions centered on the developer wanting to explain “how” the system was going to work internally to the user interface with an often expectation of having the systems design solution approved. The government consistently pointed the developer to the functional requirements and stated the system test and acceptance would be based on the functional requirements and their corresponding input and output and not on “how” the system accomplished each functional requirement. This position by government representatives allowed the developer to make internal adjustments to the system while not having to re-write the accepted test plan.

Selling Commercial Application of the Development

During the entire process the government continually reminded the developer that every functional requirement was designed to be usable by any government agency and hopefully by any commercial organization. The government was relying heavily on the developer’s own understanding of their current market and the function drivers for their future markets.

Both [Acton Burnell](#), with their sub-contractor Science Applications International Corporation ([SAIC](#)), and eManage during initial discussions questioned the functional requirements as they related to potential commercial markets. The government constantly asked them to provide feedback as to the commercial usefulness of the requirements. At conclusion, each functional requirement developed was considered viable for commercial use. This outcome supported the [DITT](#) process that drove the effort to get developers to enhance their commercial products for their own business reasons while providing the government with needed functionality.

Acton Burnell

[Acton Burnell](#) was placed under contract October 3, 2001 but withdrew from the project at its own request December 7, 2001.

eManage

[ByteQuest](#) a company purchased by [eManage](#) during the period of this development effort was placed under contract on September 7, 2001 and their prototype was accepted as complete on May 16, 2002.

Iterative Process

During the development cycle several visits and almost weekly telephone conference calls between the developer and government representatives occurred. The conference calls themselves would enjoin the government to increase the number of on-site visits and to include an unscheduled visit out of the country to Ottawa, Canada in order to finalize the project development. Weekly telephone conference calls included repeated discussions of functional requirements and the expected outcomes. More often than not, the developer engaged government representatives in “how to” discussions. In every instance the government responded by stating the test of the system would be for the identified input and the resulting output and not in an engineering review of “how” the functional requirement was accomplished.

Development Ends

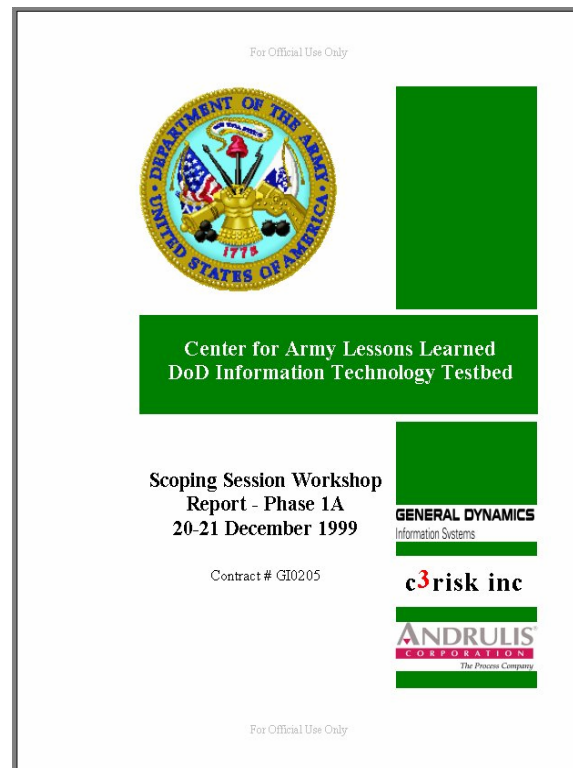
On May 16, 2002 the government accepted the final product developed by [eManage](#) as complete (with all modifications made and approved by the government).

The final product was developed using the model at [Figure E](#) and proved to be acceptable to both the vendor and the government. [eManage](#) senior personnel and development staff provided very positive feedback on the use of Use Case notation with imbedded Functional Requirements.

The process was such a success that [eManage](#) has agreed to consider engaging in a second government sponsored effort funded by the [National Historical Publications and Records Commission \(NHPRC\)](#) awarded to the University of California at San Diego (Super Computing Center) and the State Archives of Michigan.

Project Genesis

In 1998 the [DITT](#) contracted with General Dynamics Information Systems (GDIS) to utilize Federal Information Processing Standard 183 – INTEGRATION DEFINITION FOR FUNCTION MODELING (IDEF0) in order to document the process of receiving documents and passing into the custody of a [certified RMA](#). The receipt of these documents is one of many mission areas carried out by the [CALL](#). Often, these documents will come in unsolicited and in both electronic and in hard copy form (e.g. paper). However, at a higher level, leaving out the library-like functions of the [CALL](#), organizations across the federal government carry out the activities of receiving documents and setting them aside as records daily. This larger and more encompassing activity was the target of this [DITT](#) project.



In late 1999, the project was stalled apparently due to miscommunication between the functional experts and the engineering-system design contractors – GDIS. At this time, the Director, National Media Laboratory (the designated leadership authority appointed by the ASD(C3I) brought in experts who re-energized the process. c3risk inc to provide project management support and ANDRULIS Corporation for facilitation support. Using facilitation tools from [ANDRULIS Corporation](#) (See Appendix L) of Arlington, Virginia to implement a process originally conceived by DoD Records Management Task Force, the [DITT](#) would be the first to utilize it in a prototype development effort.

Scoping Session Workshop

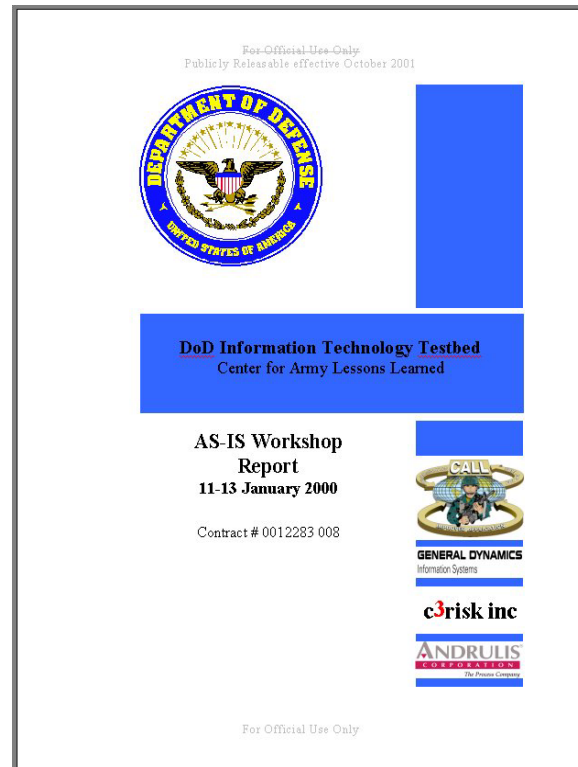
The first activity in the accepted NML process was to properly scope the project and produce a document that both functional experts and the engineering design team would agree upon.

Representatives from [ANDRULIS Corporation](#), c3risk inc and GDIS conducted a two day Current AS-IS Model assessment and project scoping meeting on December 20 and 21, 1999. The meeting objective was to assess the CALL AS-IS IDEF0 model and to establish a mutual understanding with the contractor support team of the goals established for the project.

The [ANDRULIS](#) team reviewed the September 1999 [CALL](#) AS-IS model and presented the group an assessment of the model's compliance to the IDEF0 methodology. The GDIS team presented an undelivered December 1999 version of the [CALL](#) AS-IS model. The group assessed the model and agreed that the most efficient way to document current understanding of the core processes of the [CALL](#) would be to develop a new Mission Model during the first days of the next session in January 2000.

All participants agreed that there were two significant outcomes from this work that would need to be accomplished;

1. IDEF0 AS-IS/TO-BE and Object Oriented (OO) TO-BE models for systems development
2. Functional and data requirements from the OO TO-BE model and responding technical/system requirements document.



The contractors then developed the collaborating meeting process requirements, content and process of distributing read-ahead packages and session report format. It was agreed that about five reports would be produced during the entire project life. The contractors developed draft A-0 and A0 IDEF0 diagrams of the [CALL](#) mission. These proposed models were distributed to participants for the January 2000 session.

AS-IS Model

Representatives from the [CALL](#), GDIS, c3risk inc, and [ANDRULIS Corporation](#) conducted a three-day collaborative AS-IS Modeling Session on January 11 – 13, 2000.

The meeting objectives were to train the participants in the IDEF0 technique, create a [CALL](#) Mission Model, prioritize the [CALL](#) mission model activities, and create a user-driven [CALL](#) (prioritized A0) AS-IS IDEF model – all objectives were accomplished

The schedule presented by GDIS was approved and potential opportunities to compress the project schedule were identified. The date February 4, 2000 was set as the milestone to review resource information and finalize the project schedule for collaborative Sessions 3 (OO Modeling) and Session 4 (Systems Requirements Document). The group

was then provided an IDEF0 orientation using the proposed [CALL](#) mission model from the December 20 – 21, 1999 Scoping Report.

The team validated the purpose, viewpoint and scope of the proposed [CALL](#) mission model. The team then validated the top-level (context) diagram (A-0) that describes the [CALL](#) mission and the next level (A0) diagram that models the core activities of the [CALL](#). In order to prioritize these core activities the participants conducted a brainstorming exercise to first develop selection criteria. The team selected the order that the activities would be modeled in order to ensure that the AS-IS model would be decomposed to the appropriate level of detail to support the development of the TO-BE model and the identification of functional requirement specifications.

The participants exceeded the session objectives by decomposing PROVIDE LESSONS LEARNED to level three and decomposing PROVIDE CALL WEB SITE AND PROVIDE SECURITY ASSESSMENT to level two.

Last, the team suggested the appropriate individuals for participation in the TO-BE modeling session and reviewed the project schedule to ensure agreement and understanding.

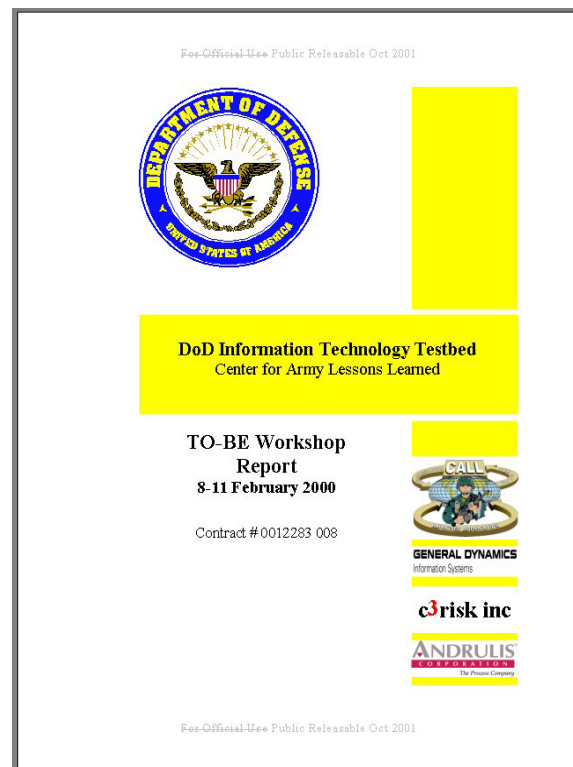
TO-BE Model

The Collaborative Session II, TO-BE modeling workshop, was conducted February 8 – 11, 2000. Representatives from the [CALL](#) and DITT Core Team participated with support provided by c3risk inc, GDIS and [ANDRULIS Corporation](#).

The principle outcome was to develop an IDEF0 TO-BE model depicting the “Research CALL Data Base” activity.

The core mission objectives used in the development of the TO-BE model were:

1. Collect, analyze and disseminate lessons learned, tactics, techniques, procedures, research material and security assessment to the Army.
2. Define functional requirements to collect, analyze and disseminate information in order to test, evaluate, develop and transfer to other government agencies new technologies and methodologies.



3. Serve as a functional testbed site within the DoD for the development and implementation of technologies that improve the collection, analysis and dissemination of information and data.
4. Store electronically and disseminate operational records and important information for long-term use and preservation.
5. Serve as the central node for a knowledge reach back system to provide information support to deployed U.S. forces units engaged in training exercises and to Army force design efforts.

Upon determining the core missions that needed to be supported, the participants prioritized the improvement opportunities that were generated during the previous workshop. The intent was to focus TO-BE modeling efforts in those areas that provided maximum return towards mission objectives.

The participants proceeded to use the IDEF0 methodology to model the activities in the Research [CALL](#) Data Base area. During the course of this effort additional improvement opportunities were identified. Further prioritization was conducted to scope the model to appropriate developmental increments. The final day was dedicated to reviewing the project plan and providing an orientation briefing of object-oriented methodology in preparation for the IDEF0 to object-oriented transition.

IDEF0 – Integration Definition for Function Modeling

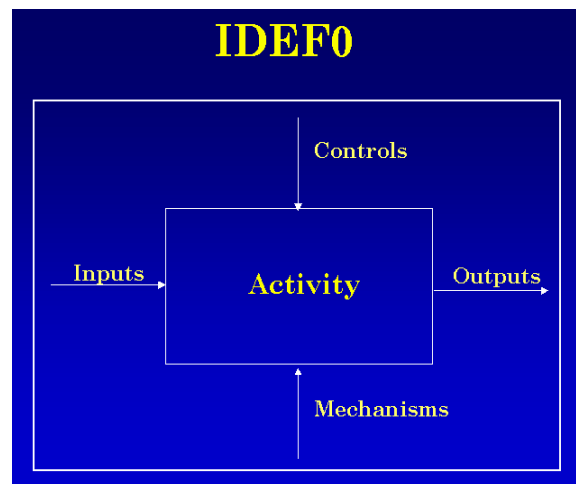


Figure B – IDEF0 Inputs, Controls, Outputs, Mechanism

Federal Information Processing Standard 183 describes the IDEF0 modeling language (semantics and syntax), and associated rules and techniques, for developing structured graphical representations of a system or enterprise. Use of this standard permits the construction of models comprising system functions (activities, actions, processes,

operations), functional relationships, and data (information or objects) that support systems integration.²

Originally adopted under the Department of Defense Corporate Information Management program, IDEF0 allows functional experts to utilize a standard notation to define their processes in a manner that is understandable and usable by both the engineering and computer science communities.

The DITT choose to adopt this notation but agreed with input from both the NML and the GDIS that OO notation and documentation through Use Case would better serve the development of any system design required.

In its simplest terms IDEF0 allows functional users to note inputs, activities and outputs associated with their business practices. This then translates neatly into functional requirements (Input, Activity and Output).

OBJECT ORIENTED NOTATION

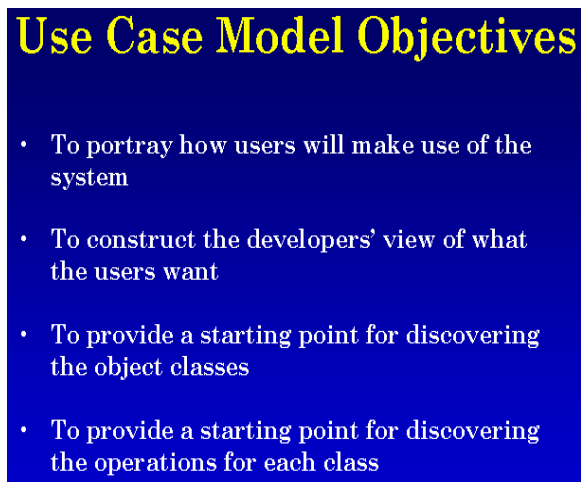


Figure C – Use Case Model Objectives

The notation is an accepted standard for engineering and systems design.

It is however, not easily understood or usable by functional experts, especially as they evaluate a system and are called upon to render their opinion before acceptance is conveyed to the vendor.

Relating IDEF0 to OO – The New Process

² Draft Federal Information Processing Standards Publication 183 1993 December 21 Announcing the Standard for INTEGRATION DEFINITION FOR FUNCTION MODELING (IDEF0)

A new process was developed in order to leverage the ease of use of the IDEF0 notation by functional experts in order to utilize current engineering notations for systems design and development.

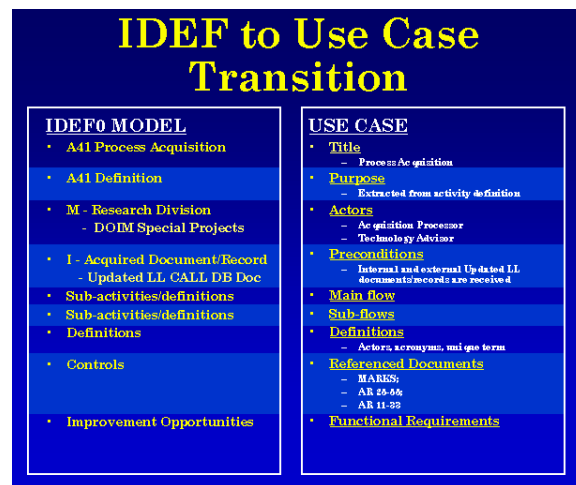


Figure D – IDEF to Use Case Comparative Example

The process starts with the development of IDEF0 models and then through a series of facilitated meetings participants relate one aspect of IDEF0 to a Use Case.

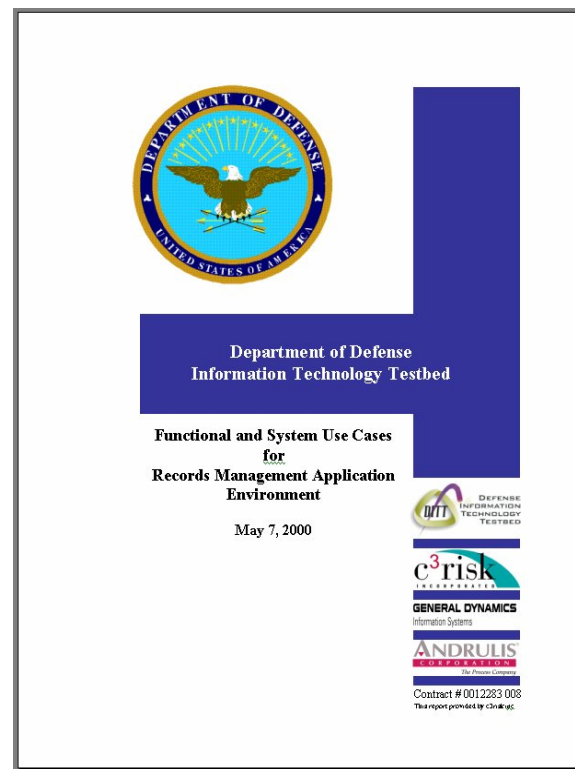
Functional and System Use Cases for RMA Environment

The object-oriented modeling workshop was conducted March 28 – 30, 2000. Representatives from the [DITT](#) and the [CALL](#) were in attendance in addition to support from c3risk, GDIS and [ANDRULIS Corporation](#).

The session objective was to migrate from the IDEF0 notation to OO techniques in order to establish an OO syntax that would be used by the [DITT](#) to articulate enterprise functional requirements and [CALL](#) specific requirements for a prototype to a development team.

The planned outcomes for the workshop were to:

1. Develop Object-Oriented use case for Process Document based



upon the previously developed [CALL](#) TO-BE model sub-activity – Process Acquisition

2. Develop functional requirements to support the Process Document activity
3. Ensure that each functional requirement was represented in at least one use case
4. Ensure improvement opportunities developed during the TO-BE process modeling were addressed as functional requirements

Prior to validating the proposed use cases, the participants identified environmental constraints that would underpin the work. They are:

1. Records are documents
2. Documents are in an electronic form
3. Documents are received, processed and become records

Specific attention was directed at determining a standardized electronic document object that would be used in the first prototype development. A use case is developed so that similar organizations with like needs can implement them by constraining the use cases down to their mission specific requirements by adding to the enterprise use case. For the [CALL](#) prototype, Defense Messaging System (DMS) mail message objects were considered a viable object for test since DMS mail messages are highly structured. For the remainder of the workshop the participants reviewed and validated the proposed use cases and their related functional requirements.

At the conclusion of the session, all participants agreed to an additional follow-on meeting that would further refine both the use cases and the functional requirements. That meeting was conducted on April 12, 2000 and resulted in the documentation of 16 Process and System Enterprise use case containing 59 functional requirements. The use case were developed with the intent that they could be used by other organizations seeking to establish an electronic document to records environment that included meeting organization specific needs. Future efforts will include the use of DoD Data Standards for the portability of records from one certified [RMA](#) to another.

This success allowed for the migration of the IDEF0 models into Object Oriented notation through the use of a modified Use Case that included “Functional Requirements”. These requirements were designed to describe the functional perspective to be tested after the system design was complete.

The incidental and direct impact of the use of IDEF0 to Object Oriented notation proved the single most significant factor in project success. IDEF0 allows functional experts through entity relationship modeling, or a picture diagram, to display their process at the activity level. IDEF0 allows for the derivation of functional requirements describing the exact input and output the system is to accomplish. IDEF0 allows functional experts to associate the system test and evaluation plan with their processes. Since functional experts can associate test procedures with activities they can participate in an equal manner with scientists and engineers in reviewing the developed product.

The use of IDEF0 as a starting point and then migrating it to an accepted engineering notation OO, was a major breakthrough in the development effort for several reasons.

1. IDEF0 is easy to use and understandable by functional experts.
2. IDEF0 allows for easy extraction of INPUT, ACTIVITY and OUTPUT ([See Figure B](#)) to create functional requirements.
3. IDEF0 models migrate to Use Case notation in an easy manner ([Figure D](#)).
4. Use Case notation is an excepted standard for systems design and development by the engineering and computer science communities.

RMA Implementation Process

The process requires that an office desiring to utilize an RMA;

- Review its business processes
- Document their mission specific requirements
- Establish the prioritization of the requirements
- Review requirements to ensure they meet the minimum standard for being declared a requirement
- Review the DoD Certified List of RMA
- Contact and negotiate with certified vendors to find one or more that look capable of developing the mission specific requirements around the certified RMA
- Engage the vendor
- Develop the test and evaluation plan using ONLY the mission specific requirements³
- Test the system using the test and evaluation plan
- Accept and insert the RMA

One of two key concepts adopted for this development effort in order to support a successful RMA implementation was defining what a functional requirement is (and is not) and the parts comprising it. The following rules were adopted pertaining to the documenting of functional requirements ([See Figure E](#)).

1. A functional requirement must be derived from the IDEF0 model.
2. The requirement must state the input, activity and the expected output.
3. An individual reviewing the “plain language” requirement will be able to trace the requirement to its creating input, activity and output in the IDEF0 model.
4. A functional requirement will state “what” is to be accomplished or “what” the expected outcome will be and will not dictate a technical approach or solution.

The second key concept supports the activity of documenting mission specific requirements when using OO Use Case notation. The following rules were accepted and implemented.

³ Only mission specific requirements need to be tested since the vendor has already been certified by the DoD

1. A Use Case cannot exist without at least one functional requirement associated with it.
2. A Use Case may have more than one functional requirement associated with it.
3. A Use Case can be associated with the original IDEF model through the functional requirement(s) associated with it.
4. The Use Case format will be modified to include an additional part placed below “Purpose” entitled “Functional Requirement”.

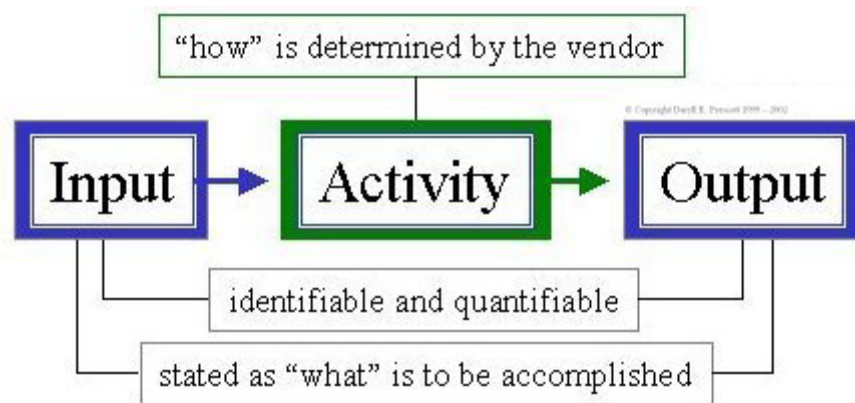


Figure E – Three parts of a Functional Requirement

DITT Use Case and Functional Requirements

The Functional and System Use Cases for Records Management Application Environment, May 7, 2000 would be used as the foundation for the rest of the DITT project.

The document contained 59 functional requirements imbedded in 16 Use Case documents ([Appendix K](#)). It is important to note the [DITT](#) modified normal Use Case documentation to include a requirement that a Use Case document must contain at least one Functional Requirement. There was a mandatory review of all Use Case documents that did not contain at least one Functional Requirement. The results of the review were the Use Case would either be eliminated or aggregated into another Use Case.

A Use Case must contain at least one functional requirement or the Use Case is to be reviewed for its validity. Imbedded at the top of each use case, the systems designer would find functional requirements set out describing in INPUT-ACTION-OUTPUT language the functional experts view of what the Use Case was to accomplish.

It was the functional requirements that were utilized in reviewing and accepting the Test and Evaluation Plans by the vendors. When there was an “engineering” perspective that differed with the functional experts expectation, the functional requirements were reviewed. In every case, every time, it was clearly evident functional experts understood

what was being asked and the engineers were required to re-vector their work to accommodate.

Broad Area Announcement

Initial Announcement – August 2000

The DITT model for the project included cost sharing with any potential vendor for the development. It was believed that a successful outcome of the effort would occur only if the vendor would be convinced that product was commercially viable and not just for use within the government.

In August 2000 the [DITT](#) requested the US Army Communications-Electronics Command (CECOM) under the authority of the published Broad Area Announcement (BAA) ([Appendix G](#)) “Knowledge Management for DITT/Agile Commander Reach-back” ([Appendix H](#)) send a notice of intent to DoD certified RMA vendors. Vendors certified and listed by the JITC on March 5, 2001 received an invitation to participate in a collaborative development effort with the government. If a certified product was a collaborative effort (e.g. two or more companies) then all points of contact listed for the certified product were invited to respond with a letter of interest. Additionally, non-certified companies who indicated they would partner with a certified RMA vendor requested and were provided an invitation to participate⁴ ([Appendix I](#)).

Initial Response – Letter of Interest

Of the vendors sent the invitation, 17 responded. The initial response consisted of a two page document outlining the technical approach to the proposed [16 Use Case and 59 Functional Requirements](#). Each respondent was asked to provide the following information in his or her letter of interest.

1. An indication of [the] company’s interest in prototyping the Use Cases and Functional Requirements and a willingness to submit a formal proposal.
2. The name, phone number, fax number, address and e-mail of the Primary Investigator.
3. A clear discussion of the development approach the company will use
4. A reasoned estimate of how many of the Use Case the company will attempt to prototype;
 - a. Within a 120 day development window, and
 - b. With no more than \$100,000.00 of government funding
 - c. With additional vendor additional funds of not more than \$200,000.00

⁴ Non-certified RMA vendors were required to indicate the certified RMA product that would be used in the development effort.

Letter of Interest Review

Upon reviewing the 17 responses, the government invited each vendor to submit a formal proposal. Each vendor was given 30 days to submit proposals by May 25, 2001. Of the 17 vendors, nine submitted a formal proposal (See Figure G).

Advanced Technology Systems, Inc
New Image Technologies
Information1st, Inc.
Acton Burnell, Inc. - SAIC
ByteQuest Technologies, Inc.
Austin Info Systems, Inc.
Relativity, Inc.
IMPACT Systems, Inc.
Access System LLC

Figure F – List of Vendors Submitting Formal Proposals.

Members of the [DITT](#) and [CALL](#) reviewed the formal proposals primarily using a basic two set criteria.

1. How many Functional Requirements was the vendor willing to do?
2. How competent that vendor's response to the Functional Requirements appeared to be (e.g. completeness, accuracy, reasonableness, logical)?

Final Selection

Two vendors were selected and contacted for their interest in pursuing the development they had proposed, these were:

- [Acton Burnell, Inc. 1500 North Beauregard Street Suite 210 Alexandria, VA 22311](#)
- [ByteQuest Technologies Inc. 1565 Carling Avenue, Suite 502 Ottawa, Ontario, Canada K1Z 8R1](#) [eManage Corporation]

Both vendors accepted and were issued contracts in October 2001 and September 2001 respectively.

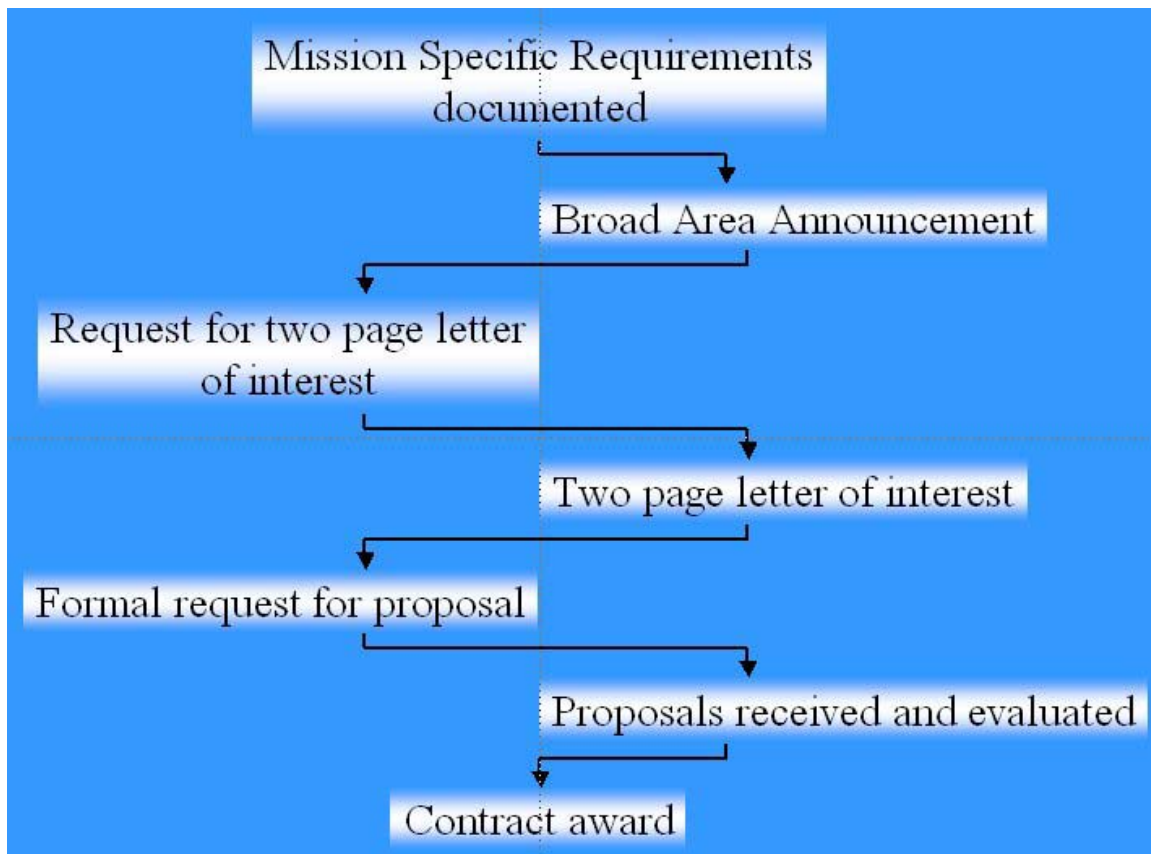


Figure G – DITT Activities for Contract Award

Additional Requirements of September 2001

Initial meetings were held in September 2001, focused on ensuring clear lines of communication and understanding were in place. Additionally, a constant revisiting of the contract parameters in reference to what documents would be used for the development were a constant agenda topic.

One valuable outcome of the initial meetings was the vendors review and comments on functions not present in some of the Use Case. Specifically, start actions when a document was suspended were not present – leaving the document in a hold status and not returning it to the process.

September 2001 Additional Functional Requirements.

The system shall provide the capability for an authorized user to delete a Received Document in the “virus quarantine area”.
The system shall provide the capability for an authorized user to change the Virus Contamination Indicator of a Received Document in the “virus quarantine area” from “contaminated” to “not-contaminated”.
The system shall provide the capability for an authorized user to remove from the “virus quarantine area” a Received Document with a Virus Contamination Indicator equal to “not-contaminated”.
The system shall provide the capability for an authorized user to re-insert the “virus quarantine area” “not-contaminated” Received Document back into the process at the activity following the activity that stopped the Received Document when it was identified as “contaminated”.⁵
The system shall provide the capability for an authorized user to delete a Processed Document in the “security quarantine area”.
The system shall provide the capability for an authorized user to change the Security Classification Level of the Processed Document in the “security quarantine area” to a Security Classification Level equal to or lower than the System Accreditation Level.
The system shall provide the capability for an authorized user to remove from the “security quarantine area” a Processed Document with a Security Classification Level equal to or less than the System Accreditation Level.
The system shall provide the capability for an authorized user to re-insert the Processed Document in “security quarantine area” with a Security Classification Level equal to or less than the System Accreditation Level back into the process as the activity following the activity that stopped the Processed Document when it was identified as having a Security Classification Level higher than the System Accreditation Level.⁶
The system shall provide the capability for resuming processing of an “interrupted” Processed Document after the review/reconciliation/correction of the attribute value(s) that caused the “interrupt” to occur.⁷
The system shall provide the capability for an authorized user to resume processing of an “interrupted” Processed Document at the FIRST activity in the Set Attributes Use Case.⁸

Figure H – September 2001 Additional Functional Requirements

⁵ This requirement loops the Received Document back into the process from the Alternative Flow identified in the Check Document for Virus Use Case.

⁶ This requirement loops the Processed Document back into the process from the Alternative Flow identified in the Verify and Set the Security Classification Attribute Use Case

⁷ Functional Requirement 8F of the Set Attributes Use Case indicates “interrupt” and not the stopping of the process. This is equivalent to hold and wait rather than a stop activity with no resume activity, as is the case in the Check Document for Virus Use Case and the Verify and Set the Security Classification Attribute Use Case. This functional requirement is provided to add clarification to the current use case and is not intended to modify or to add to functionality already defined and present in use case 8F.

⁸ This functional requirement ensures a system check is completed after corrections have been made using the Unpopulated Value Notice. This requirement ensures an iterative process is in place ensuring that post manual reviews are always system reviewed prior to the Processed Document being set aside as a Preserved Document.

There was an additional requirement identified that necessitated modification as a result of the initial meetings with [Acton-Burnell](#) and [eManage](#) – “The system shall provide the capability for an authorized user to update the Thesaurus.”⁹ This requirement was not included since it was obviously a library function and more geared toward an organization like the [CALL](#) and not relevant to the majority of federal agencies.

Test, Evaluation and Acceptance

By the spring of 2002, the project schedule had been slipped several times in order to accommodate development based on information from project review meetings. This slippage in schedule was mostly due to the developer taking a tangential course of design away from the original functional requirement – specifically the expected outcome of the action-response of the system.

[eManage](#) continued through these sessions to step up and continue development, ultimately delivering to the [DITT](#) the week of March 17, 2002 a “draft working system” for testing. The system was utilized and on March 28, 2002 the [eManage](#) Project Manager went on-site at the [DITT](#) and reviewed findings and answered questions related to the functionality of the system. Although this was not a formal test of the system using the approved test and evaluation plan, the plan was used to step through the functions of the system resulting in positive discussions, action items for eManage and questions answered for the DITT.

Final acceptance of the system was accomplished on May 10, 2002 on-site at the [eManage](#) facility in Ottawa, Canada. At that time, the [eManage Final Test and Evaluation Plan](#) was presented to the government along with the [eManage Test Plan](#) results. After the government review of both documents and the system, the government accepted the prototype. In June 2002 the final version of the prototype with both the [accepted test and evaluation plan and the test results](#) were delivered the [DITT](#) and has been operational since that time.

⁹ CURRENT FUNCTIONAL REQUIRMENT – The system will provide the capability to output for viewing, printing and saving all terms that are not "stop words", not in the Thesaurus and not in Previous Thesaurus Candidate Term List

System Development at a Glance

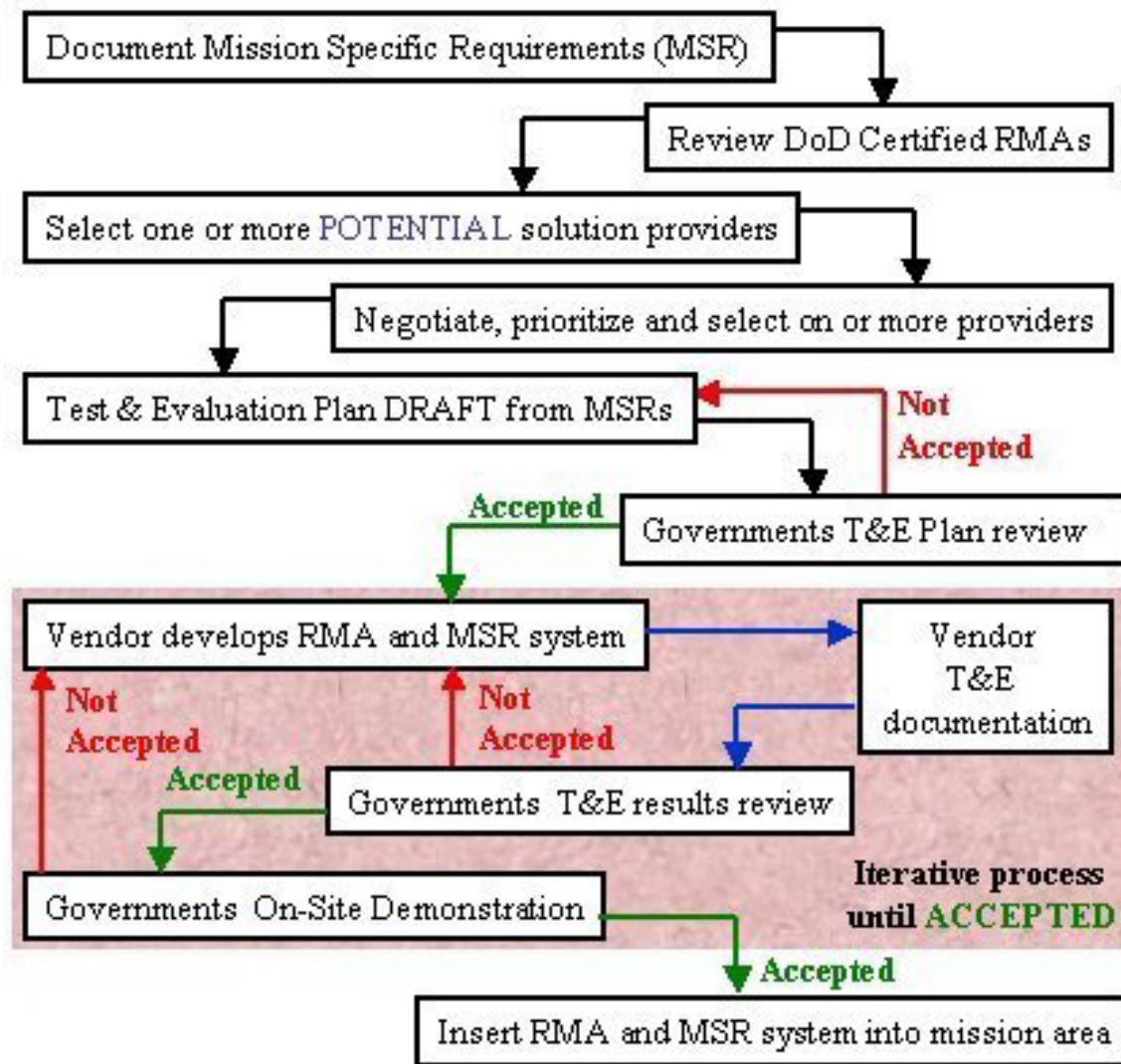


Figure I – DITT Activities For System Development and Acceptance.

Appendix A – Acronyms

Acronym	Expanded
ASD	Assistant Secretary of Defense
BAA	Broad Area Announcement
C3I	Command, Control Communications and Intelligence
CALL	Center for Army Lessons Learned
CECOM	Communications-Electronics Command
CICA	Competition in Contracting Act
DITT	Department of Defense Information Technology Testbed
DMS	Defense Messaging System
DoD	Department of Defense
DoDGARS	Department of Defense Grant and Agreement Regulations
FAR	Federal Acquisition Regulations
FIPS	Federal Information Process Standard
GDIS	General Dynamics Information Systems
IDEF0	Integration Definition for Function Modeling
JITC	Joint Interoperability and Test Command
NHPRC	National Historical Publications and Records Commission
NML	National Media Laboratory
NTA	National Technology Alliance
OO	Object Oriented
RMA	Records Management Application
SAIC	Science Applications International Corporation

Appendix B – DITT Authorization Letter

[return page 1]



COMMAND, CONTROL,
COMMUNICATIONS, AND
INTELLIGENCE

ASSISTANT SECRETARY OF DEFENSE
6000 DEFENSE PENTAGON
WASHINGTON, DC 20301-6000

May 23, 1997

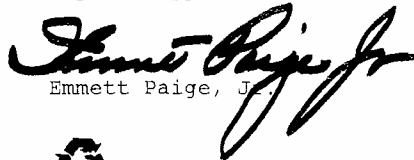


MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
DIRECTOR, DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE
DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTOR, ADMINISTRATION AND MANAGEMENT

SUBJECT: Designation of a Department of Defense (DoD)
Information Technology Testbed

In July 1995, my office set forward on a path to standardize the mechanisms by which the DoD creates, maintains, transfers/retires and destroys records throughout their life-cycle. The National Media Laboratory (under the auspices of the National Imagery and Mapping Agency (NIMA)), in collaboration with the Army's Center for Army Lessons Learned (CALL) at Fort Leavenworth, Kansas, developed a pilot system that represents an end-to-end process for automated document conversion that manages information as electronic records. The system has been chosen as a functional testbed for testing and integration of new digital technologies. The testbed will also collect, manage and disseminate information worldwide. This system will allow record searches for critical information from the theater and Continental United States (CONUS).

This digital information technology program located at Ft. Leavenworth, under the leadership of the Director, NIMA, is designated the DoD Testbed. This testbed is designed to implement a comprehensive, standardized records management system on a broad scale for all Components in the DoD. This technology will then be integrated, tested throughout DoD, and ultimately made available across the Federal Government for use. As we stand up this initiative we ask your support.


Emmett Paige, Jr.



Appendix C – DITT Projects From Web Page

[\[return page1\]](#)

Operational (Desktop) Environment

[Multimedia Archives Analysis System \(MAAS\)](#) - Briefing

[Multimedia Analysis and Archives System](#) - White Paper

[Metadata and Metadata Finding for an Operational Repository](#) - Briefing

[Workflow Management Prototype System in the Operational Environment](#) - Briefing

[The CALL Request for Information Pilot System, November 2001](#) - Briefing

[The CALL RFI Pilot System Overview, 18 April 2002](#) - Briefing

[Search and Retrieval of Information within an Operational Repository](#) - Briefing

[Output from an Operational Environment Repository to an Enterprise Environment Knowledge Base](#) - Briefing

Enterprise and Knowledge-Based Environments

[Automated Receipt and Processing of Multimedia Records from the Desktop](#) - Briefing

[Automated Archiving of Multimedia Records](#) - Briefing

[Automated Archiving of Multimedia Records, The Next Steps](#) - Briefing

[Broad Area Announcement, Letter of Issuance, Knowledge Management Prototype](#) - Document

[Broad Area Announcement, Section 004, Knowledge Management and Warehousing](#) - Document

[Incorporating a Records Management Application in the Enterprise Environment](#) - Briefing

[Functional Systems Design using IDEF and Object Oriented Modeling](#) - Briefing

[\[return page 1\]](#)

Mandatory Attributes (Metadata) for a Knowledge Management Prototype,
March 2002 - [HTML Page](#) or [Excel Spreadsheet \(96KB\)](#)

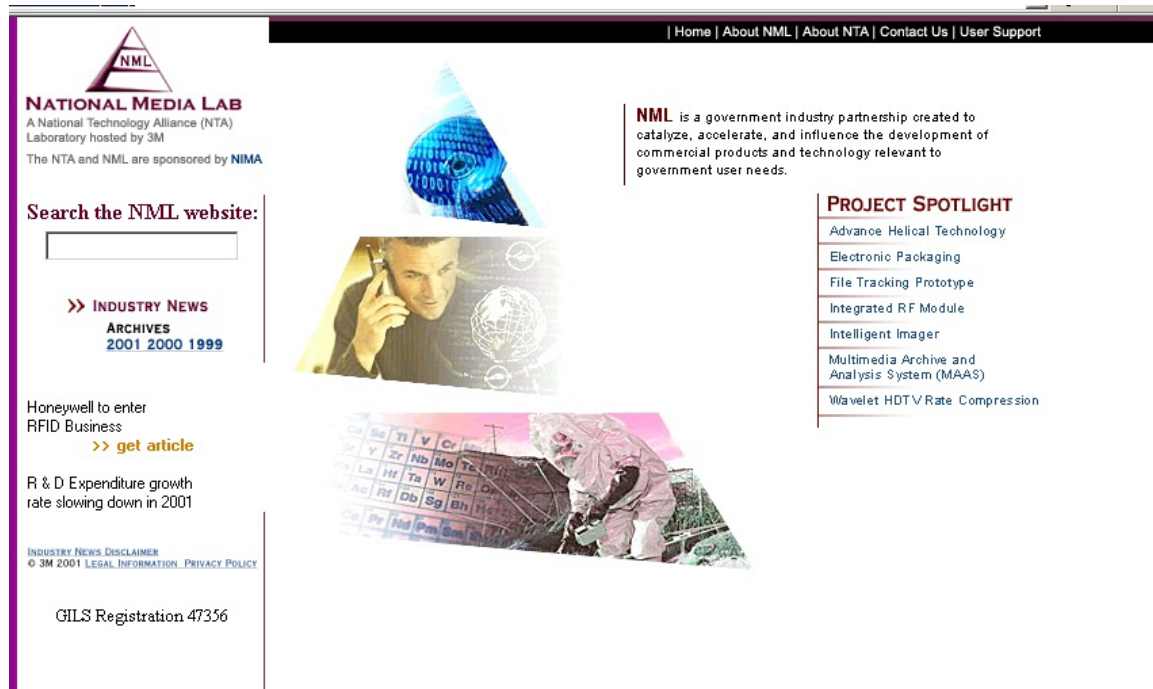
[Next Generation Records Management](#), Achieving Digital Transparency in
Government - Article

[Request for Proposal, DITT Knowledge Management Prototype](#) - Document

[Results of Object Oriented Modeling for the Enterprise Environment](#) -
Briefing

Appendix D – National Media Laboratory

[\[return page 1\]](#)



Participating Members

Mr. Gene Hickok, Deputy Director, National Media Laboratory	1987 – 2002
Mr. Daryll R. Prescott, Operations Support, National Media Laboratory	1999 – 2002

Appendix E – DITT Personnel

[\[return page 1\]](#)

Center for Army Lessons Learned Sponsor:

Michael A. Heimstra, Colonel, Field Artillery, Director

Listed in alphabetical order by last name.

Mr. Roy Carroll, Center for Army Lessons Learned, University After Next	1998 - 2001
Ms. Nancy Davis, Center for Army Lessons Learned Research Division	2000 - 2001
Ms. Claire Grosso, Center for Army Lessons Learned, Operations Division	2001
Ms. Nani S. Hughes, Center for Army Lessons Learned, Research Division.	2001
Mr. Larry Jackson, TRW Contractor, Center for Army Lessons Learned	2001
Mr. William M. Kinsey, Center for Army Lessons Learned, DITT Project Officer	1998 - 2002
Dr. Scott W. Lackey, Center for Army Lessons Learned, Research Division	1997 - 2002
Ms. Kathryn H. Nevins, Center for Army Lessons Learned, Research Division	1997 - 2002
Mr. Kurt Northrup, Center for Army Lessons Learned, Lessons Learned Division	2001
Mr. Mike Reilly, Directorate of Information Management, Special Projects	1997 - 2002
Dr. Tim Sanz, Center for Army Lessons Learned, Research Division	2001
Ms. Karen Shaw, CRM, Center for Army Lessons Learned, Research Division	1997 - 2002
Dr. Dale Steinhauer, Center for Army Lessons Learned, Research Division	2000
CPT Joe Thomas, Center for Army Lessons Learned, Operations Division	2001
Ms. Maria Traynham, Center for Army Lessons Learned, Research Division	2000
Mr. Kenneth L. Vanderpool, Center for Army Lessons Learned, Information Support Division	2001 - 2002

Appendix F – DITT Publications from Web Site

[\[return page 1\]](#)

Prototypes, DITT Advanced

[Dynamic Virtual Document System](#) - Presentation

[CORE Metatecture](#) - White Paper

[Knowledge Based Discovery Tool](#) - Briefing

[Lexicon, 3M/Health Information Services \(HIS\) Prototype](#) - Briefing

Prototypes, Other

[Electronic Records Archives, National Imagery and Mapping Agency \(NIMA\)](#) - Briefing

[Enterprise Document and Records Management \(EDRM\) Portal Development, ASD, C3I](#) - Briefing

Lessons Learned, Reports and Findings

[CALL As-Is IDEF0 Modeling Workshop Report, January 2000](#)

[CALL To-Be IDEF0 Modeling Workshop Report, February 2000](#)

[DITT Point Paper, 10 October 2000](#) - Document

[Functional and System Use Cases for Records Management Application Environment](#) - 742KB Report

[Information and Knowledge Management Lifecycle Concept](#) - Graphic

[OE-2, Operational Repository Metadata and Metadata Findings](#) - Briefing

[DITT Update, In-Depth, May 2000](#) - Briefing

Potpourri

[Archiving Public Web Sites, Final DoD Guidance, January 2001](#) - Document

[\[return page 1\]](#)

[Automated Document Conversion Master Plan](#) - Document

[DoD STD 5015.2 Revision 1, DITT Comments](#) - Document

[DoD-STD 5015.2, DRAFT - Revision 1, October 2000](#) - Document

[DoD XML Registry - Policy Memorandum](#) - Document

[Electronic Records Management Guidelines](#) - Minnesota Historical Society

[Electronic Records Management...The Next Five Years](#) - Briefing

[History of DoD 5015.2 Standard, it's Futurity and Other Interesting Technologies](#) - Briefing

[Points of Contact, Federal Agency Records Officers](#) - Document

[Records and Information Management Quick Tips and Facts](#) - Document

[The Once and Future Portal:
Integrating Knowledge Access and Exploitation with Enterprise Document
and Records Management](#) - Briefing

[Victorian Electronic Records \(VERS\) Strategy Final Report](#)

Appendix G – CECOM Broad Area Announcement

[\[return page 15\]](#)

|United States Army Communications-Electronics Command

Research, Development
And
Engineering Center

Fort Monmouth, New Jersey

Broad Agency Announcement

The Broad Agency Announcement (BAA) has been posted. It can be accessed at the following address:

<http://abcp.monmouth.army.mil/busop/or27.nsf/8df825feb86675de852564650046faea/02c1b7a7551c50348525693500648fb7?OpenDocument>

DAAB07-00-R- L613
August 2000

Appendix H – CECOM Knowledge Management

[\[return page 15\]](#)

FROM: US Army CECOM C2D (AMSEL-RD-C2-SS-T)
 SUBJECT: Knowledge Management for DITT/Agile Commander Reach-back
 REFERENCE: 1. Functional and System Use Cases for Records Management
 Application Environment. See attached.
 2. Knowledge Management Prototype Guidance. See attached.
 3. Agile Commander BAA Number DAA07-00-R- L613, August 2000. See attached.

Dear Sir,

1. The Defense Information Technology Testbed (DITT) as chartered by the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD-C3I) on 23 May 1997 stipulated the Center for Army Lessons Learned (CALL) as a testbed for information technologies. The DITT seeks to solve long-standing problems in traditional (analog) records management practices by establishing the principles of life-cycle electronic records, information and knowledge management. These principles apply to all working environments and will be linked to the business process of document creation, workflow, security classification, and functional and technical management on local and wide area network knowledge management systems. Such linkage makes records management principles relevant by embedding them in the daily mission of an agency (i.e., CALL), transparent to desktop users, while contributing to the corporate knowledge of the broader organization to which it belongs (i.e., Army; DoD).

2. One of the DITT's primary goals is to engage industry electronic records and document management developers who have either had products certified through the Department of Defense, Records Management Certification Testing by the Defense Information Systems Agency, Joint Interoperability Test Command <http://jitc.fhu.disa.mil/index.htm> or will have submitted their product for certification as of the date of this letter. Additionally, for purposes of responding to this letter, consortia between Companies that own certified products and Companies that have non-certified products are encouraged and will be accepted under Phase I. However, one of the members of the Consortia must own the intellectual property rights to a Certified RMA.

3. This initiative seeks to engage commercial electronic document and records management software developers in a collaborative effort to prototype and test a system proposed in the referenced Functional and System Use Cases for Records Management Application Environment drafted by the DITT. This effort will consist of three phases and at the discretion of the Government, an optional forth phase. Phase I will consist of respondent's two page proposals to this letter. Phase II will be by invitation and will consist of a formal proposal as per referenced Knowledge Management Prototype Guidance. Proposals will be primarily in response to Chapter 2 of the Functional and System Use Cases for Records Management Application Environment, 15 June 2000. Phase III will consist of the development, system documentation, test and evaluation plan, test and the report of results of the test and evaluation plan of the proposed prototype. An optional Phase IV will include the implementation of one or more of the developed prototypes as a pilot system(s) in an actual enterprise mission environment.

4. Using the Department of Defense Integrated Definition (IDEF) and Object Oriented (OO) analysis standards, the DITT has drafted 16 use cases and 59 associated functional requirements that are believed to be

necessary in order to integrate and implement a records management software application as a component of an enterprise system within a mission environment. The DITT report "Functional and System Use Cases for Records Management Application Environment" utilized as its basis the DoD 5015.2 Design Criteria Standard for Records Management Application Software, <http://jitc.fhu.disa.mil/index.htm>, Functional Baseline Requirements and Data Elements for Records Management Application Software <http://jitc.fhu.disa.mil/index.htm>, and the Department of Defense Data Architecture <http://www-datadmn.itsi.disa.mil/> - dda.

5. Responses must be received 30 days from the date of this letter in accordance with the CECOM Broad Area Announcement DAAB07-00-R-L613, dated August 2000, Topic #4 (Reference 3, attached). An electronic copy of should be e-mailed to: Dr. David Rhodes, (732) 532-0593, e-mail:

David.Rhodes@maill.monmouth.army.mil and simultaneously electronic copies should be sent to Mr. William Kinsey (KINSEYW@LEAVENWORTH.ARMY.MIL) and Dr. Israel Mayk (Israel.Mayk@maill.monmouth.army.mil). Responses must be two pages or less and should be based on a review of the report "Functional and System Use Cases for Records Management Application Environment" (Reference 1, attached), and "Knowledge Management Prototype Guidance" (Reference 2, attached)

6. Responses must contain the following information:

- a) An indication of your company's interest in prototyping the Use Cases and Functional Requirements and a willingness to submit a formal proposal.
- b) The name, phone #, fax #, address and e-mail address of your Primary Investigator.
- c) A clear discussion of the developmental approach that your company will use in the prototyping process.
- d) A reasoned estimate of how many of the Use Cases your company can prototype with the two constraints of 120 days and \$100,000 of direct funding with (at your discretion) additional matching funds of \$200,000.
- e) An indication of how quickly your company can prepare a formal proposal and begin prototyping.
- f) A brief discussion of what immediate clarification of Use Cases or Functional Requirements you would require to complete a formal proposal. I.e., tell us where the language is not clear enough for you to understand our objectives.

7. CECOM Bottom Line, the Soldier

Israel Mayk, D.Eng.Sc.
Project Engineer, C2 Technology Branch
US Army CECOM RDEC C2D RDEC

Appendix I – BAA Corporate Mailing List

[\[return page 15\]](#)

ByteQuest Technologies, Inc. 502-1565 Carling Ave. Ottawa, Ontario K1Z 8R1 Canada
Cimage Enterprise Systems 30610 N. High Meadow Circle Magnolia, TX 77355
Cuadra Associates, Inc 1835 W. Olympic Blvd., Suite 855 Los Angeles, CA 90066
Documentum, 6801 Koll Center Parkway Pleasanton CA 94566
DynSolutions KnowledgeFlow STG's Information1st Division 11250 Waples Mill Road South Tower, Suite 400 Fairfax, VA 22030
Eastman Software 2000 Edmund Halley Drive Reston, VA 20191-3436
Excalibur Technologies 1921 Gallows Road, Suite 200 Vienna, VA 22182
FileNET Corporation 2200 Wilson Boulevard, Suite 307 Arlington, VA 22201
General Dynamics Electronic Systems (ES) 100 Ferguson Drive P.O. Box 7188 Mountain View, CA 94039
General Dynamics Information Systems (GDIS) 8800 Queen Avenue South Bloomington, Minnesota 55431
Highland Technologies, Inc. 4831 Walden Lane Lanham, MD 20706
Hummingbird Communications Inc. (formerly PC DOCS) 15355 Secret Hollow Place Waldorf MD 20601
Impact Systems Inc 100 West Rockland Road, Suite H PO Box 66 Montchanin, DE 19710-066
iManage, Inc. 2121 South El Camino Real Suite 400 San Mateo, California 94403
Informix Software, Inc. 4100 Bohannon Drive Menlo Park, CA 94025 USA
Internet Commerce Express, Inc. (icomXpress) 22 Cotton Road Nashua, NH 03063
InterTech Information Management, Inc. 400 Perimeter Center Terrace NE, Suite 249 Atlanta, Georgia 30346-1229
Lockheed Martin 6801 Rockledge Drive Bethesda, MD 20817
MDY Advanced Technologies, Inc 21-00 Route 208 S.Fair Lawn, New Jersey 07410
New Image Technologies Monterey Building Country Club Office Plaza 7780 Office Plaza Drive - Suite 136 West Des Moines, IA 50266
Open Text (formerly PSSoftware) 3775 Richmond Road Nepean, Ontario, Canada K2H 5B7
Open Text (formerly PSSoftware) 5009 Ridgewood Road Arlington, VA 22209
Oracle 1910 Oracle Way Reston VA 20190
Provenance Systems, Inc. 1401 Wilson Blvd., Suite 1050 Arlington, VA 22209
Relativity, Inc. 1720 S. Caraway Road, Suite 2010 Jonesboro, AR 72401
Objective Corporations One Boston Place Level Five Boston, MA 02108
TOWER Australia Software Corporation P.O. Box 100 10 Geils Court DEAKIN WEST ACT 2600 Australia
TOWER Software Corporation 11490 Commerce Park Drive, Suite 120 Reston, VA 20191
TREEV, Inc. 13900 Lincoln Park Drive, Suite 300 Herndon, VA 20171
TRION Technologies 739 Beta Business Mall Mayfield Village, Ohio 44143
Unisys Corporation 2611 Corporate West Drive Lisle, Illinois 60532-3697
Integric Corp. 14585 Avion Parkway Chantilly, VA 20151

Appendix J – KM Prototype Guidance – March 2001

KM Prototype Guidance Defense Information Technology Testbed (DITT) 1 March 2001

1. INTRODUCTION

This document provides additional guidance for the acquisition of a DoD 5015.2 Certified Records Management Application (RMA) Software prototype to support Knowledge Management for Army users in general and for the Agile Commander in particular.

The DITT has drafted 16 use cases and 59 associated functional requirements that are believed to be necessary in order to implement a records management application as a component of an enterprise system within a mission environment. The report Functional and System Use Cases for Records Management Application Environment <http://160.149.176.119/docs/projects/usecasesrpt.pdf> utilized as its basis the DoD 5015.2 Design Criteria Standard for Records Management Software Application <http://jite.fhu.disa.mil/index.htm>, Functional Baseline Requirements and Data Elements for Records Management Application Software <http://jite.fhu.disa.mil/index.htm> and the Department of Defense Data Architecture <http://jite.fhu.disa.mil/register.htm>.

- 1.1. For this BAA, consortia between Companies that own DoD 5015.2 certified products and Companies that have non-certified products are encouraged and will be accepted for review under Phase II. However, one of the members of the Consortia must own the intellectual property rights to a Certified RMA.
- 1.2. This initiative seeks to engage commercial electronic document and records management software developers in a collaborative effort to prototype and test a system proposed in the Functional and System Use Cases for Records Management Application Environment drafted by the DITT (See Attached). This effort will consist of three phases and at the discretion of the Government, an optional forth phase. Phase I will consist of respondent's two page proposals to a certified letter. Phase II will be by invitation and will consist of a formal proposal (per attached KM Prototype Guidance) with responses specifically directed to Chapter 2 of the Functional and System Use Cases for Records Management Application Environment, 15 June 2000. Phase III will consist of the development, system documentation, test and evaluation plan, test and the report of results of the test and evaluation plan of the proposed prototype. An optional Phase IV will include the implementation of one or more of the developed prototypes as a pilot system(s) in an actual enterprise mission environment.

Because responses to this BAA may vary significantly in the nature and scope of the proposed prototyping, the size and number of awards may also vary. The base amount of DITT funding available for individual awards will not exceed \$100K. If supplemental funds are identified and proposed from another source (Non-DITT), an additional amount of DITT funding for individual awards will match the non-DITT amount not to exceed \$200K. Thus, the total amount of DITT funding possible for an individual award is \$300K with a minimum of non-DITT investment of \$200K.

Appendix K – Use Case and Functional Requirements

[\[return page 14\]](#)

Use Case	Purpose	Functional Requirements
1. Log Received Document	This use case logs into the Receipt Log all documents that are received and logs into the Error Log all received documents that are not compliant.	<p>A. The system will provide the capability to output for viewing, printing, searching and saving a log of each document received</p> <p>B. The system will provide the capability to output for viewing, printing, searching and saving an error log of each non-compliant document</p> <p>C. Document with viruses will be entered into the error log</p> <p>D. The system will uniquely identify all incoming documents</p> <p>E. The system will populate the Received Document Attribute Values upon receipt of a Document</p> <p>F. The system will assign a File Classification to each document based on the Received Document File Classification</p>
2. Check Document for Viruses	This use case is to check a Document for viruses, attempt to clean the Document if it has viruses, and issue a Virus Indicator Contaminated Notice and stop processing of the Document if the Document has viruses that cannot be removed.	<p>A. The system will virus check 4 every document within a Received Document</p> <p>B. The system will assign a Virus Contamination Indicator that indicates the document was either "contaminated" or "not contaminated" in the Error Log</p> <p>C. The system will remove all viruses from every document with a Virus Contamination Indicator of "contaminated"</p> <p>D. The system will provide the capability to identify every document that failed the "remove viruses" activity</p> <p>E. The system will stop the processing of a document of with a Virus Contamination Indicator equal to "contaminated" and is identified as failing the "remove viruses" activity and move the document into a controlled (quarantined) area</p> <p>F. The system will provide the capability to make available a Virus Indicator Contaminated Not Cleaned Notice for every document moved into the controlled (quarantined) area</p> <p>G. The system will provide the capability to make available a Virus Indicator Contaminated Cleaned Notice for every document that has a "contaminated" Virus Contamination Indicator that includes the virus(es) removed including the name of the virus(es)</p> <p>H. The system will make available for viewing, printing and saving all notices of the Check Document for Viruses Use Case</p>

3. Process Document	Ensure that a Received Document becomes an authentic record in a reliable environment	A. The system will handle all incoming documents at the level of system security accreditation B. The system will handle the document in accordance with its assigned security classification level C. The system will ensure the authenticity of a document until it is made available as a Preserved Document
4. Build Search Index	This use case supports Locate Privacy Act Information, Identify Prospective Thesaurus Terms and Search Processed Document use cases.	A. The system will provide the capability to find the unique words and unique acronyms within the Document B. The system will provide the capability to find the positions of each word and acronym within the Document C. The system will provide the capability to output for viewing printing and saving unique words and unique acronyms and their positions
5. Verify and Set the Security Classification Attribute	This use case determines the proper security level classification for a Document based on the security level markings in the Document and issues notification if either the proper security level classification is different from that provided the Document or exceeds the System Accreditation Level.	A. The system will provide the capability to compare security classification level markings of the document and assign the highest security classification level found to the Processed Document B. The system will provide the capability to output for viewing, printing and saving a security classification level discrepancy notification when the Processed Document security classification level is different than the document security classification level C. The system will provide the capability to “stop the processing of a document” when the identified Security Classification Level is higher than the System Accreditation level D. The system will provide the capability to output for viewing, printing and saving a security system accreditation discrepancy notification when a “stop the processing of a document” occurs
6. Locate Privacy Act Information	This use case identifies the instances of Privacy Act information and their locations in a Document.	A. The system will provide the capability to output for viewing, printing and saving matches between the document and the Privacy Act List
7. Identify Prospective Thesaurus Terms	This use case identifies terms from a Document that are not stop words, not in the Thesaurus, and not in the Previous Thesaurus Candidate Term List.	A. The system will provide the capability to output for viewing, printing and saving all terms that are not "stop words", not in the Thesaurus and not in Previous Thesaurus Candidate Term List
8. Set Attributes	This use case populates the Document, Lifecycle and Agency Unique Attribute Sets with values contained in the Document, issues notifications for required attribute values that have not yet been provided for the Document, and enables to viewing of attribute values after all of the required attribute values have been provided.	A. The system will populate the Document and Lifecycle Attribute Sets to each Received Document B. The system will populate Agency Unique Attribute Sets when provided by the document sender to each Received Document C. The system will provide the capability to output for viewing, printing and saving attribute values of the document D. The system will provide the capability to output an Unpopulated Attribute Value Notice when the document does not contain a required Attribute value E. The system will forward the Unpopulated Attribute

		<p>Value Notice to an identified individual based upon the Unpopulated Attribute Value Notice Rule Set</p> <p>F. The system will provide the capability to interrupt the processing of a set of Processed Documents based on any attribute value or presence of search terms prior to the Processed Document becoming a Preserved Document</p> <p>G. The system will provide the capability to output for viewing Processed Document attributes <<Modifiable Processed Document Attribute List>> prior to the Processed Document becoming a Preserved Document</p> <p>H. The system will provide the capability to modify attributes of the Modifiable Processed Document Attribute List during the “viewing all Processed Document attributes” activity</p>
9. Set Aside the Preserved Document	This use case verifies that a Processed Document is reliable and complete and moves the Processed Document into a certified records management environment	<p>A. The system will provide the capability to output for viewing, printing and saving a Processed Document consisting of the document, its attribute values, and Privacy Act List matches</p> <p>B. The system will ensure a complete and reliable Processed Document exists before it is made available as a Preserved Document</p>
10. Manage Preserved Record	This use case ensure the authenticity of a Preserved Record until its disposition, manage the disposition of a Preserved Record according to the value of its File Classification attribute, and make the components of a Preserved Record available for viewing, printing, and saving.	<p>A. The system will ensure the authenticity of the Preserved Record until it is made available for disposition</p> <p>B. The system will provide the capability to output for viewing, printing and saving a copy of the Preserved Record and all its components</p> <p>C. The system will provide the capability to manage each Preserved Record in accordance with File Classification attribute</p> <p>D. The system will provide the capability to associate the File Classification attribute with the File Classification Disposition Rule Set</p> <p>E. The system will provide the capability to manage each Preserved Record with a unique identifier</p> <p>F. The system will provide the capability to output for viewing, printing and saving Preserved Record Unique identifier report</p> <p>G. The system will make available all attribute values, index terms and terms contained in the contents of the Preserved Record as "searchable" data of the Preserved Record</p> <p>H. The system will provide the capability to view all Preserved Record attributes and modify those defined by the Modifiable Preserved Record Attribute List</p> <p>I. The system will provide the capability to modify attributes of the Modifiable Preserved Record Attribute List during the “viewing Preserved Record attributes activity</p>

11. Generate Dissemination Copy	This use case makes available a Dissemination Copy of a Preserved Record.	<p>A. The system will provide the capability to make available a Dissemination Copy of a Preserved Record in a standard format upon demand</p> <p>B. The system will provide the capability to redact attributes, words and phrases based on the Redacted Dissemination Copy Rule Set</p> <p>C. The system will provide the capability to make an un-redacted Dissemination Copy available to an Authorized User</p>
12. Provide Metric	This use case provides a Metrics Report regarding the activities involved with the handling of Processed Documents.	A. The system will provide the capability to output for viewing, printing and saving metrics of the Processed Document
13. Provide Status	This use case provides a StatusReport on the processing activity of a Received Document	<p>A. The system will provide the capability to output for viewing, printing and saving the current activity of any and/or all document from when it is logged until it is set aside as a Preserved Record</p> <p>B. The system shall provide notification if there are no documents meeting the requested status criteria.</p>
14. Perform Activity-level Backup	This use case backs up a Processed Document by saving the results from processing of the Processed Document for the last activity completed.	A. The system will ensure that if document processing is interrupted the processing can be continued from the last completed activity
15. Search Processed Document	This use case provides the capability of searching on the attributes and contents of a Processed Document.	<p>A. The system will provide the capability to search on the set of attributes for all documents regardless of the security classification level</p> <p>B. The system will provide the capability to search populated Attribute Values on each document until it becomes a Preserved Record</p> <p>C. The system will provide the capability to search on the content of a Processed Document and its components</p> <p>D. The system shall provide notification if there are no documents meeting the requested search criteria</p>
16. Transfer or Retire a Preserved Record	This use case takes the appropriate steps to transfer or retire a Preserved Document when identified by its disposition schedule.	<p>A. The system will provide the capability to transfer/retire the electronic form of a Preserved Document with all its attributes</p> <p>B. The system will provide the capability to output for viewing, printing and saving attributes of a Preserved Document for use in the Transfer Retire Report</p> <p>C. The system will provide the capability to add to the Record History Log the returned information from the receiving Transfer Retire Agency</p>

Appendix L – ANDRULIS Corporation Methodology

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Methodology / On-Track / BPre+ ®

ANDRULIS' solutions and services are rooted in the Company's core competencies of IT Development, Internet Systems Development, Network Engineering and Business Process Reengineering (BPR). ANDRULIS has developed a disciplined methodology for the rapid delivery of solutions and services. By applying a multiple stage approach to each competency. ANDRULIS ensures systematic and effective use of IT applications and tools in service of client needs. ANDRULIS uses a disciplined methodology—On-TRACK—to guide the Company's approach to delivery of rapid business solutions and services. The ANDRULIS methodology for Tailored Rapid Access to Knowledge consists of four steps: business analysis, solution design, solution development, and solution deployment. The steps are executed through a series of cycles consisting of knowledge mining, model development, model demonstration and evaluation, and model refinement. The flexible yet structured processes enable ANDRULIS to deliver solutions that are tailored to the needs of the client.

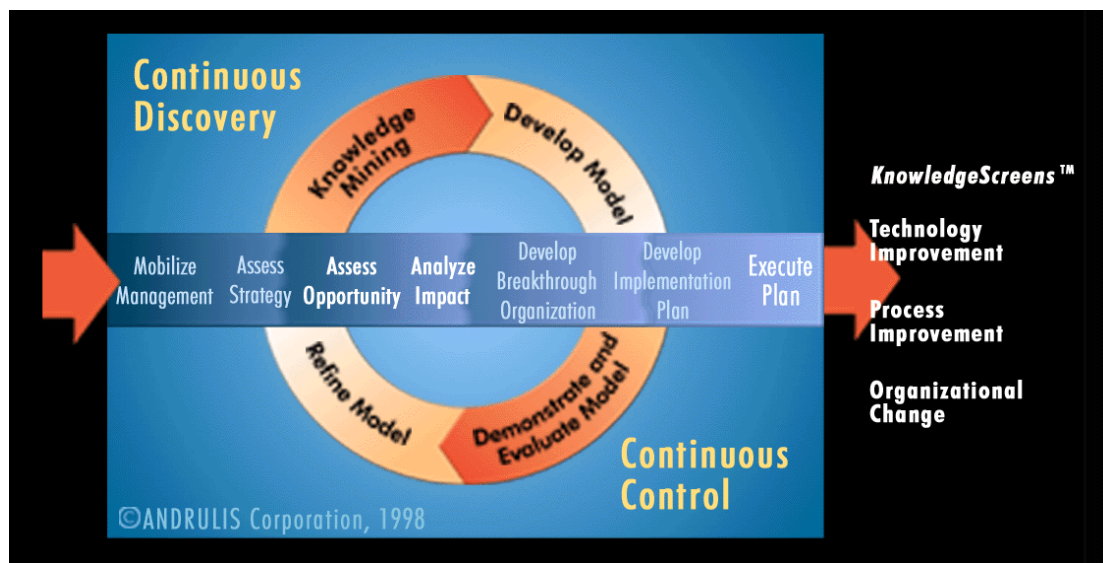


Figure J – On-TRACK Methodology

ANDRULIS' flexible and structured process for business change consists of seven stages: mobilize management, assess strategy, assess opportunity, analyze impact, develop breakthrough organization, develop implementation plan, and execute the plan.

The ANDRULIS full service consulting practice has been in existence since 1992. The business group provides the planning services by applying the ANDRULIS BPre+® methodology to develop solutions for both the public and private sectors. The

ANDRULIS BPR capability was initially established in early 1992 with a break-through approach that combined Electronic Meeting System (EMS) technology with analytical, decision support, documentation and modeling tools into an integrated system, facility and methodology to support projects. ANDRULIS has provided facilitated workshops using GroupSystems software. ANDRULIS excels in driving consensus-based solutions through collaboration. We understand change management and the impact of Information Technology systems deployment.

Change Management /Business Process Reengineering (BPR)

Change Management is a technique that enables organizations to increase the value they deliver, and decrease the resources they consume, by redesigning both their business processes and the organization and technological structures supporting those processes. The ANDRULIS BPR approach combines structured methodology; a team-based approach to analysis and decision-making; and automated groupware, decision support, and process modeling tools supported by an electronic meeting system facility to conduct these - projects. The ANDRULIS framework for delivery of rapid business solutions is based on the concept of consensus engineering and knowledge mining. Consensus Engineering is the activity within the process of engineering a solution that incorporates the preferences and priorities of the end-user by building consensus between the process experts and the systems developers. The insertion of the human element throughout the information technology development life cycle ensures that the solution developed meets the end user's requirements. Solutions are developed collaboratively by guiding the experts to consensus decisions that reflect their preferences and priorities.

The Knowledge Mining process designed and delivered by ANDRULIS consultants is based on disciplined use of subject-relevant questions and of IT-based information profiling tools for determining preferences for and prioritization of use in the building of IT systems and other IT solutions and services. Our approach results in the development of requirement definitions that truly represent the needs of the functional users.

Benefits of the ANDRULIS/BPre+® Approach

Project Strategy

ANDRULIS BPre+® uses GroupWare for team-based decision-making. GroupWare tools support information generation, analysis, and decision-making. In addition to GroupWare, ANDRULIS consultants use other proven analytical techniques to support information analysis and decision-making.

Better Decisions

Sophistication and anonymity of the data collection process allow greater amounts of information to be gathered in an organized manner, thereby facilitating a more robust decision process. The use of an automated Executive Group Decision Support environment provides integrated automated tools necessary to support Strategic Planning.

Saves Time and Money

The efficiency of the ANDRULIS approach dramatically reduces the time required for participants to develop a plan.

Responsive Solutions

Plans are developed quickly using GroupWare tools. Once the plans are approved, implementation of the recommendations can begin immediately, and are monitored efficiently with GroupWare tools.

Commitment

Participants are more likely to commit to the process because they were involved in its development. They see the organization's commitment to the future and the importance placed on their input. As a result they are more likely to make a commitment and not just "go through the motions."

Managing the Process

A management construct (e.g., QuickPlace) that employs automated tools that allow senior level managers the ability to manage the progress of plan implementation. Our approach reduces the time for quarterly review and analysis and turns the plan into a living document that has enterprise wide visibility.

Description, Location, and Technical Capability of the Andrulis Corporation Integrated Decision Support Center (IDSC)

The Andrulis Corporation Integrated Decision Support Center (IDSC). This Center, located in our Crystal City, Virginia office is an advanced facility containing state-of-the-art computer hardware, software, and communication equipment. The IDSC employs local area networks (LANs) that serve our 17-workstation GroupSystems meeting facility, our computer laboratories, and our research analyst workstations. The facility is enhanced with a balanced microphone system to facilitate verbal interaction during meetings. Our dual screen overhead projection systems provide multiple views of images. We have electronic and manual white boards to augment our electronic meeting system. Our network is connected with ANDRULIS Corporation offices nationwide and, as desired, with our clients (via Internet and common shared Lotus Notes databases). GroupSystems Workgroup edition software is used as our primary collaborative decision support tool.

The center has been developed over the last several years and continues to evolve. A key feature is the Electronic Meeting Systems (EMS) room that has 17 workstations used to support collaborative decision-making. In addition to the fixed Groupware Center, we also have mobile EMS configurations that enable us to quickly set up a Groupware Center at a client's location.



Figure K – Image of an ANDRULIS facility